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Comparison of Causes of Death in Chester County and the United States at the Turn of the Twentieth Century

by Karin L. Flippin, HIS 480 (submitted April 23, 1997)

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As part of the study of Chester County history, it is interesting to note the differences in the major causes of death in this region as compared to the average American society. By limiting a study to the fourteen years spanning the turn of the twentieth century, one can also review the changes in patterns due to advances in healthcare, the development of safety standards and food and drug laws as well as improvements in sanitation and the introduction of automobiles to the area. By looking at the causes of death in Chester County from 1893-1907 and their subsequent death rate, comparison to America on a whole can lead to inferences about how this region differed or was similar in the modernization going on around the country. How was Chester County's level of medical care and development of a public health system any different than that of America and what if any changes were seen in Chester County itself at the turn of the 19th century?

Great strides were made in the area of medicine in the nineteenth century across America. This applies to both the medical practices and the level of education and licensure for medical practitioners. By the 1890s, thirty-five states either formed or reformed a licensure system for medical graduates due to prodding from the American Medical Association, so by 1898 only the Alaskan territory existed without licensing regulations for medical graduates. Even so, figures from the 1900s show that only seven percent of medical students received some form of academic degree prior to attending medical school. Practices in anesthesia were horribly crude in the 20th century which is not surprising considering that graduate nurses were not specially instructed in the art of anesthesia until 1907 by Dr. George Crile and the Mayo Brothers. At the end of the nineteenth century modern surgery was still primarily restricted to emergencies like amputations and superficial operations. In the field of neurosurgery, the Philadelphian W. W. Keen

successfully operated on a brain tumor in 1888 and subsequently tapped the ventricles of the brain in 1889; and the aid of Roentgen rays, first discovered in 1895, combined with instruments such as the sigmoidoscope and bronchoscope, greatly helped to identify diseases.

In the same time frame as these medical interventions (1875- 1925), a group termed the sanitarians worked to eliminate communicable diseases such as typhoid fever whose cause was discovered, tuberculosis, and scarlet fever which both became less virulent. Scarlet fever began to decrease in severity spontaneously in 1885 and continued in this pattern until the 1950s while tuberculosis waned most rapidly from 1900-1925 registering at only 190 deaths per 100,000 population. Tuberculosis was more common in industrialized cities such as New York, New Jersey, Pennsylvania and Delaware who showed death rates above the mean of 41.3 per 100,000 population, even though it is also seen in many lower animals such as cattle, dogs and cats. Diphtheria, another infectious disease of the pulmonary system became more easily diagnosed in 1883 with the discovery of its cause, a therapeutic treatment in 1894 and finally immunization by 1912.

Also assisting in the slowing spread of these diseases was the improvement of sanitation and public health systems. In 1818, Philadelphia developed an organized health department, the second of largest cities to Baltimore, yet Pennsylvania did not begin a state board of health until 1885; all states had a board of health by 1913. It was not until 1895 that 27 states had incorporated food adulteration measures, the Pure Food and Drug Act was not passed until 1906, and compulsory pasteurization of milk was not until 1908 in Chicago. The first indication of a board of health in West Chester was in 1893 with the issuance of the first burial permit, after a law was passed in May of 1893, requiring a new Board of Health to be established with the duty of record keeping without financial compensation. The Chester County Hospital also began operations in 1893 in West Chester, Pennsylvania. By the end of the 19th century, with an economic crisis in America, West Chester underwent a population growth leading to construction of small, inexpensive houses. On a broader scale, a new phase of public health began, also at the turn of the century, emphasizing the health of the individual; this education stemming from the report of the sanitary conditions of the concentration camps in Florida during the Spanish-American war of 1898 and the subsequent spread of typhoid from careless disposal of human feces. At this time, large cities had banned free roaming of hogs and large domestic animals while many cities began establishing water and sewer systems which unfortunately emptied into local streams and lakes; sources of drinking water now heavily polluted. West

Chester was ahead of the game, laying the first water pipes in 1894, yet Goose Creek was one of the filthiest streams in West Chester with almost all of the sewage of the town flowing into it. And while steam and electric cars were introduced into America in the late 19th century, the first automobile owner in West Chester was not until 1905. Pollution, however, was not a concern for health reasons but rather more of a nuisance in the early 1900s, and car accidents were of an even lesser concern as seen in the death register.

Before analyzing the data on the causes of death in this era, it is important to understand the method of record keeping and the errors that went along. It has been said that of all the hard data on deaths, causes of death are fraught with the most numerous methodological problems. Along with socioeconomic development are changes in importance of various causes of death, and age distribution and is known as the epidemiologic transition. The second stage of this transition spans the years 1800 to the early decades of the 20th century when epidemics lessened as major takers of life because of improvements in sanitation and nutrition as well as medical intervention as described earlier. After 1870, medical bacteriology helped in exacting the identification of diseases allowing causes such as inflammation of the lungs to be narrowed to pleurisy or pneumonia. This classification of deaths by cause typically followed the International Classification of Diseases developed by the World Health Organization. In West Chester, the legislation for the register of deaths was formed in 1893 by the Pennsylvania governor ordering the Clerk of Orphan Courts of each county responsible for registering all births and deaths. Errors occurring in the death register were that of double entries (133+ examples from 1893-1899 alone) which will greatly skew the statistical results. The most common mistakes by physicians when filing death certificates were:

1. Physician fails to state date of attendance on patient.
 - a. If the patient has been attended by the doctor less than 24 hours prior to death, the certificate must be filed by the medical examiner.
 - b. If the physician has attended the patient for some time but has not seen him alive 10 days prior to death, the case should be referred to the medical examiner...
2. Physicians fail to write legibly. This is most important...
3. Physicians fail to state the principal cause of death in proper place, sometimes giving the final symptoms under cause of death and the actual cause of death under Contributory Causes .

4. Physicians use improper terms for cause of death such as: heart disease, heart failure, pneumonia, cancer, convulsions, natural causes, peritonitis, pulmonary hemorrhage. These causes are some of the most frequently seen in the death register of Chester County. In 1906, the Commonwealth took over responsibility for the registers from Chester County in 1907.

Results of data on causes of death and death rate for America in 1900 (see attached spreadsheets) show that the top five causes of death were the same for both adult males and females, these being other/unknown, diseases of the heart, influenza/bronchitis/pneumonia, infectious and parasitic diseases and tuberculosis. In comparison, Chester County's number one was also other/unknown and this is most probably due to the error involved in record keeping. Second for Chester Co. was degenerative diseases which may have been due to the difficulty in classifying individual causes of death from this county into broader categories, for example, old age as a cause of death was included in the degenerative classification. Influenza/bronchitis/pneumonia ranked the same as the U.S. while the next two most common in Chester Co. for adults were diseases of the heart and diseases of early infancy, the latter obviously a mistake in record keeping. The former difference could be due to the fact that West Chester, being a more advanced, industrialized city compared to most of rural America, saw less incidence of infectious diseases and tuberculosis; typhoid fever is primarily a disease of rural people. For children, the deaths were about the same on both scales with other/unknown ranking first, diseases of infancy considerably higher in Chester Co. (second) versus the U.S. where heart disease ranks second followed by colds in third for both groups. In the US, degenerative diseases, tuberculosis and maternal causes were seen in 4th and 5th while in Chester Co. it was degenerative diseases and gastritis/enteritis/diarrhea. It should be noted that children includes all those under the age of 16, leading to higher maternal deaths that may otherwise have been misunderstood for errors.

Within Chester County at the turn of the century, no significant differences were seen in cause of death. Prior to 1900 in male to female adults, the top five causes were other/unknown, degenerative diseases, influenza/bronchitis/pneumonia, vascular lesions of the central nervous system and heart disease while after 1900 for the same group was other/unknown, degenerative diseases, heart disease, influenza and lesions of the CNS. For children before 1900, the top causes were other, diseases of infancy, influenza, degenerative diseases and gastritis/enteritis/diarrhea; after 1900 these did not change at all in terms of rank. The similarities within the

county at the turn of the century are probably due to the short time span studied, and small population sample as well as the fact that it takes time for health and medical changes to affect the individual on a mass scale. Diphtheria, infectious diseases and tuberculosis ranked low on the scale of 1-15 during both time periods reflecting the better sanitation of an industrialized area like Chester County. Of particular interest was that in both time periods, males ranked much higher on accidents than females, probably due to the exposure to working in mines, railroads and industry versus the home, like the women. In contrast, women ranked much higher than men in cancer for unknown reasons except speculation about incidence of breast/ovarian cancer prior to regular gynecological exams. It was surprising that accidents did not rank higher for any group considering the abundance of children in the workplace. However, in 1892, the working age was raised to fourteen while safety measures were also increased.

The data reviewed did not show many out of the ordinary differences between Chester County and the United States but it also looked at a very generalized group of data. More intense studies could be done with a longer time span, focusing on more specific causes of death rather than just the top five of fifteen. Much information is available regarding the control of the spread of diseases throughout history and could shed light on the question of industrial produced cancers and diseases that seem to be localizing around certain cities in the U.S. Within Chester County, interviews in the neighborhood suggested that the people felt healthy and stable; many lived into their eighties and raised large families. Most of the deaths recalled were due to accidents or old age; whether that recollection is due to selective memory, poor record keeping or excellent health standards in Chester County, we may never know.

Bibliography

1. Samuel H. Preston, Mortality Patterns in National Populations: With Special Reference to Recorded Causes of Death (New York, New York: Academic Press, Inc., 1976).
2. Robert Kastenbaum & Beatrice Kastenbaum, Eds. Encyclopedia of Death (Phoenix, Arizona: Oryx Press, 1989).
3. Speiser, E. A. et al. Studies in the History of Science (Port Washington, New York: Kennikat Press, Inc. 1941).
4. Haller, John S. Jr. American Medicine in Transition 1840-1910 (Chicago, Illinois: University of Illinois Press. 1981).

5. Smillie, Wilson G. Public Health Administration in the United States, 3rd Edition (New York, New York: The Macmillan Company. 1951).
 6. Duffy, John. The Sanitarians: A History of American Public Health (Urbana and Chicago, Illinois: University of Illinois Press. 1990).
 7. Lerner, Monroe & Anderson, Odin W. Health Progress in the United States 1900-1960 (Chicago, Illinois: The University of Chicago Press. 1963).
 8. Daily Local News (July 26, 1889)
 9. Daily Local News
 10. Daily Local News (November 30, 1893), in Chester County Historical Society clippings file.
 11. Daily Local News (April 3, 1894), in Chester County Historical Society clippings file.
 12. Jones, James A. "Wealth and Longevity; Poverty and Disease: a Comparison of Populations in Nineteenth Century West Chester, Pennsylvania" (West Chester University Department of History. April 30, 1996).
 13. Webster's New International Dictionary, Reference History Edition. (Springfield, Massachusetts: G. & C. Merriam Company, 1910).
 14. Jim Jones. West Chester History TIMELINE provided to students in Computer Methods for Historical Research. (HIS480, 1996).
 15. Vince Civiletti. "The Chester County Death Register, 1893- 1899" (HIS480, May 13, 1996). Student research paper.
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